

## SOLAR DRYING OF PRUNES

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Three series of sun drying trials were conducted this year to evaluate the effect of various fruit treatments on drying time. The drying times of 6 to 9 days were obtained with chloroform or lye dipping. A drying time of about one day longer was obtained with methylene chloride and a hot water dip. Heating the skin of the fruit with a radiant heat source produced a drying time of about 2 to 3 days longer than the best treatment. Fruit was considered dry at 25% moisture content. Placing the fruit in a solar dryer with any of the treatments reduced the drying time by about one day. The variation in drying time within a treatment is assumed to be due to differences in air temperature, fruit size, and sugar content.

Fruit dried to 28% moisture content in a conventional parallel flow dehydrator was successfully dried by placing it in a 4-foot deep bin and forcing unheated air through the fruit. This method of final drying will allow sundried fruit to be removed from the field at least one day and perhaps two days early. Utilizing two-stage drying would increase the number of times the drying yard could be used in a season and allow fruit to be picked up early if a rain were expected. Two-stage drying can also be used with conventional heated air dehydrators and will increase drying capacity by about 25 to 30% and reduce drying costs by 5 to 15%. The percent of savings will increase as natural gas prices increase at a greater rate than electrical prices.

Weather data for the past 27 years indicated there were two years with more than 1/4-inch of rainfall in the month of August in the Yuba City-Marysville area and none in the Visalia area.

The maximum fruit loading for sun drying is 5 pounds of green fruit per square foot. Loadings about this level will result in mold and insect damage.

The cost of sun drying is expected to be about \$18 per ton of undried fruit compared with a cost of \$50 per ton for contract drying with the existing method (1979 data). The major components of the cost are about \$8.50 per ton for equipment to treat the fruit, spread it on continuous paper trays and collect it after it has dried and \$6.70 per ton for the paper. The cost of the land which is devoted to drying is not included. About 8 to 9 acres will be required to dry the fruit from a 100-acre orchard. The drying land can be used for winter wheat or barley and on the basis of the reduced drying costs, it will yield about \$22,000 because it was devoted to sun drying.